

WHAT IS CLAIMED IS:

1. A non-contact IC card reader/writer device comprising:
 - 5 antennas that perform transmission and reception of carrier waves between the non-contact IC card reader/writer device and a non-contact IC card;
 - a detector that detects the voltage level of each of the carrier waves received from the non-contact IC
 - 10 card via the antennas; and
 - a control unit that calculates the location of the non-contact IC card, based on the detected voltage levels detected by the detector.
- 15 2. A non-contact IC card reader/writer device comprising:
 - antennas that perform transmission and reception of carrier waves between the non-contact IC card reader/writer device and a non-contact IC card; and
 - 20 a control unit that alternately drives the antennas, obtains location information from the non-contact IC card, and calculates the location of the non-contact IC card.
- 25 3. A non-contact IC card reader/writer device comprising:
 - antennas that are arranged in a matrix on one plane, and perform transmission and reception of carrier waves between the non-contact IC card
 - 30 reader/writer device and a non-contact IC card; and
 - a control unit that sequentially drives the antennas, and calculates the location of the non-contact IC card based on the distribution of the locations of antennas that have received a response
 - 35 from the non-contact IC card.
4. A non-contact IC card reader/writer device

comprising:

antennas that are arranged in a matrix on one plane, and perform transmission and reception of carrier waves between the non-contact IC card

5 reader/writer device and a non-contact IC card;

a detector that drives all the antennas at once, and detects the voltage level of each of the carrier waves received from the non-contact IC card via the antennas; and

10 a control unit that calculates the location of the non-contact IC card, based on the voltage levels detected by the detector and the locations of antennas that have received the carrier waves.

15 5. A non-contact IC card reader/writer device comprising:

antennas that perform transmission and reception of carrier waves between the non-contact IC card reader/writer device and a non-contact IC card;

20 a positioning sensor that optically detects the location of the non-contact IC card; and

a control unit that detects the location of the non-contact IC card from the location information of the non-contact IC card detected by the positioning

25 sensor.

6. A non-contact IC card reader/writer device comprising:

30 antennas that perform transmission and reception of carrier waves between the non-contact IC card reader/writer device and a non-contact IC card;

Hall elements that are respectively provided to the antennas, and detect changes in field intensity on the plane of the antennas; and

35 a control unit that detects the location of the non-contact IC card, based on the field intensity changes detected by the Hall elements.

7. An input device comprising a non-contact IC card reader/writer device including:

5 antennas that perform transmission and reception of carrier waves between the non-contact IC card reader/writer device and a non-contact IC card;

a detector that detects the voltage level of each of the carrier waves received from the non-contact IC card via the antennas; and

10 a control unit that calculates the location of the non-contact IC card, based on the detected voltage levels detected by the detector.

8. A non-contact IC card comprising:

15 an antenna that receives a carrier wave supplied from an outside device that calculates the location of the non-contact IC card, the carrier wave being inversely proportional to the distance from the outside device;

20 a detector that detects the voltage level of the carrier wave received through the antenna; and

a control unit that transmits the voltage level detected by the detector to the outside device.

25 9. The non-contact IC card as claimed in claim 8, further comprising an input switch that an operator can press to operate,

wherein the control unit detects a timing signal in accordance with a pressing operation of the input switch, and outputs the detected timing signal to the outside device.

35 10. The non-contact IC card as claimed in claim 8, further comprising a detector that detects an input operation performed on a touch pad by an operator,

wherein the control unit outputs input information detected by the detector, in response to a

request issued from the outside device.

11. The non-contact IC card as claimed in claim
8, further comprising a switching area on the surface
5 of the touch pad.

12. The non-contact IC card as claimed in claim
8, further comprising a scrolling area that detects a
scrolling operation of an operator on the surface of
10 the touch pad.

13. The non-contact IC card as claimed in claim
8, further comprising a detachable holding member.

14. An input device comprising a non-contact IC
card that includes:

an antenna that receives a carrier wave supplied
from an outside device that calculates the location of
the non-contact IC card, the carrier wave being
20 inversely proportional to the distance from the outside
device;

a detector that detects the voltage level of the
carrier wave received through the antenna; and

a control unit that transmits the voltage level
25 detected by the detector to the outside device.

15. A method of detecting the location of a
non-contact IC card, comprising the steps of:

performing carrier wave transmission and
30 reception with the non-contact IC card through
antennas;

detecting the voltage level of each carrier wave
received from the non-contact IC card through the
antennas; and

35 calculating the location of the non-contact IC
card, based on the voltage levels detected in the
detecting step.

16. A method of calculating the location of a non-contact IC card, comprising the steps of:
performing carrier wave transmission and
5 reception with the non-contact IC card through antennas; and
calculating the location of the non-contact IC card from location information obtained from the non-contact IC card through alternate driving of the
10 antennas.
17. A method of calculating the location of a non-contact IC card, comprising the steps of:
performing carrier wave transmission and
15 reception with the non-contact IC card through sequential driving of antennas arranged in a matrix on one plane; and
calculating the location of the non-contact IC card, based on distribution of the locations of
20 antennas that have received a response from the non-contact IC card.
18. A method of calculating the location of a non-contact IC card, comprising the steps of:
25 performing carrier wave transmission and reception with the non-contact IC card through simultaneous driving of antennas arranged in a matrix on one plane;
detecting the voltage level of each carrier wave
30 received from the non-contact IC card through the antennas; and
calculating the location of the non-contact IC card, based on the voltage levels detected in the detecting step and the locations of antennas that have
35 received the carrier waves.
19. A method of calculating the location of a

non-contact IC card, comprising the steps of:
 optically detecting the location of the non-
contact IC card with a positioning sensor; and
 calculating the location of the non-contact IC
5 card, based on location information of the non-contact
IC card detected with the positioning sensor.

20. A method of calculating the location of a
non-contact IC card, comprising the steps of:
10 performing carrier wave transmission and
reception with the non-contact IC card through
antennas;
 detecting a field intensity change on the plane
of the antennas with Hall elements corresponding to the
15 antennas; and
 calculating the location of the non-contact IC
card, based on the field intensity change detected with
the Hall elements.

20 21. A method of calculating the location of a
non-contact IC card, comprising the steps of:
 receiving each carrier wave supplied from an
outside device that calculates the location of the non-
contact IC card through an antenna provided in the non-
25 contact IC card;
 detecting the voltage level of the carrier wave
received through the antenna; and
 transmitting the voltage level detected in the
detecting step to the outside device.

30 22. The method as claimed in claim 21, further
comprising:
 detecting a timing signal in accordance with an
operator pressing an input switch; and
35 outputting the detected timing signal to the
outside device.

23. The method as claimed in claim 21, further comprising:

detecting an input operation performed on a touch pad by an operator; and

5 outputting input information detected from the touch pad, in response to a request issued from the outside device.